Effect of Variation on Leaf Waste Types from UNY Campus Environment and Basic Feed Ratio on Bioconversion and Developmental Period of Black Soldiers Fly (Hermetia illucens) Larvae

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ABSTRACT

The life cycle of black soldiers fly (BSF) has an unique side. The uniqueness lies in the life of larvae (*maggots*) until the pupa and metamorphosis become relatively clean flies, do not like smelly media and tend to the condition of the media to moist enough to dry. Unlike some other types of flies, the BSF life cycle can bring more advantages than disadvantages. Various problems related to the ability of BSF larvae to decompose organic waste, it seems that research is needed to determine the ability to decompose leaf waste in the UNY campus environment which has not yet taken into account its potential.

There are 4 types of leaf waste that will be tested, namely categories A, B, C, D: A (*Ficus sp*.), B (*Markisa*), C (*Kelengkeng*), D (*Glodhogan*) leaf waste, meanwhile E as a control is in the form of basic feed. The ratio of media and basic feed BSF in each category A, B, C, and D as larval rearing media, the composition consists of: (80% leaf waste + 20% basic feed), (60% + 40%), (50% + 50%), (40% + 60%) and (20% + 80%). Each treatment was carried out 4 replications. The maintenance place is a plastic x 35 x 26 x 6 cm plastic tray on a strimin-covered iron rack and with a total initial weight of the media composition is 500 grams. Each larvae were raised from 10 days after incubation of the larvae with an average total weight of 20 grams / tub until they reach the pupa period on the 21st day. The basic feed is fermented soft rice bran. All maintenance is carried out in a protected BSF cage measuring 2 X 0.6 X 2 meters. The parameters observed were: 1). Increased BSF larvae biomass; 2). Bioconversion capabilities based on *Feed Conversion Ratio* (FCR); and 3). The length of period the larvae become pupae. Data analysis used a *Completely Randomized Design* with a Nested Design on 2 independent variables with the help of SPSS software Version 19. If the results were significant at ≤ 5%, further tests were performed with *Duncan Multiple Range Test* (DMRT). Data on the period of larval development into pupae were analyzed using the *Krusskal Wallis Test*.

The results showed: 1). The highest biomass increase in the treatment with *Markisa* leaves, although lower than the control. The highest biomass at a ratio of 50: 50%. The type of leaf waste and the ratio with basic feed have a very significant effect ($P < 0.01$) on the increase of BSF larvae biomass. 2). The highest FCR on the interaction of the treatment of leaf waste types and the ratio to the basic feed was found in *Markisa* and at a ratio of 50:50% by 65.66%, with a very significant level of influence ($P < 0.01$). 3). The type of leaf waste and the ratio with the basic feed have a significant effect ($P < 0.05$) on the larval period, the shortest is in the *Ficus* type waste treatment (20.25 days), while the longest is in *Glodhogan* (21.96 days).

Kata Kunci: *Variations, ratios, waste, leaves, larvae, BSF.*